95. (Amended) The product according to claim 93 further comprising a cellulosic fines layer adjacent the first and second surfaces having a thickness of from about 1/36 inch to about 1/4 inch.

REMARKS

Claims 93-95 are the only claims currently under substantive consideration, and these claims are rejected as allegedly being obvious under 35 U.S.C. § 103(a) over Wold, U.S. Patent No. 5,435,954 (Wold) in view of Radcliffe *et al.*, U.S. Patent No. 6,136,408 (Radcliffe). Applicants respectfully disagree, traverse this rejection and request that it be withdrawn.

A. Requested Claim Amendments Add No New Matter and Further Distinguish Wold and Radcliffe

Applicants have requested several amendments to claim 93 to more particularly state features of the claimed product that distinguish such product from that disclosed by Wold, Radcliffe, or the combination thereof. First, beginning at page 3, line 3, the Office action states that "the instant claims do not require that the product be in a single layer, as argued by applicant." Applicants have requested that claim 93 be amended to specify that the structure recited is directed to either a single-layered product, or to a single layer of a multi-layered product.

No new matter is added by applicants' amendments to claim 93. Fig. 20 of the present application is an enlargement of a portion of core C. The illustrated core C can define a product by itself or be used as single layer, i.e., a center or core portion, of a multilayered product as illustrated by Fig. 19. Fig. 20 clearly shows that the flakes of core C continuously graduate in size with longer flakes adjacent the two outer surfaces of the core C graduating to smaller flakes adjacent a center portion of core C. Flakes within this layer are graduated and aligned using two dispensers positioned adjacent one another, one operating in a first stage direction and the other operating in a second stage direction, as described with reference to certain figures of the present application, e.g., Fig. 27, beginning on page 40, line 24.

B. Reverse Graduation of Flakes within a Single Layer is Not Anticipated or Obvious

Claim 93 requires that the cellulosic flakes be *reverse graduated with respect to length* within the single layer. Neither Wold nor Radcliffe teaches a product that has reverse graduated flakes, particularly in a waste thermoplastic composite, and hence the combination of Wold and Radcliffe cannot teach or suggest this feature.

Wold's product does include cellulosic flakes of different sizes within a single layer. For example, Wold teaches that products can be made by separating out flakes of from about 3 inches to about 6 inches to make a center portion of a multilayered product. Thus, this center portion taught by Wold would include flakes ranging in size from 3-6 inches. But there is no description in Wold to suggest reverse graduating the flakes according to size.

Moreover, Wold does not disclose an apparatus or method useful for forming a unitary product, or a single-layer of a multi-layer product, having reverse graduated cellulosic flakes within the single layer. Instead, practicing Wold's described apparatus and method would form a product where the size distribution of the cellulosic flakes within a single layer is substantially random.

Radcliffe does not cure the deficiencies of Wold with respect to reverse graduation of flakes by size within a single layer of a waste-thermoplastic composite product. Applicants first assert that there is no basis to combine the disclosures of Wold and Radcliffe to support a *prima facie* obviousness rejection. Wold is directed to waste thermoplastics; Radcliffe is not. Moreover, Radcliffe is very narrowly focused on producing OSB having a smooth surface, a problem not of much concern to Wold. Hence, as a first position, applicants request that the obviousness rejection be withdrawn as the Office action provides no basis to support the contention that Wold and Radcliffe are properly combinable for supporting an obviousness rejection.

Second, assuming solely for purposes of argument that the two references are properly combined, the combination still does not teach or suggest the features of applicants' claim 93. The preceding discussion established that Wold does not teach reverse graduation of cellulosic fibers within a single layer of a cellulosic-waste thermoplastic composite. Radcliffe also does not teach reverse graduation of flakes within a single layer. More specifically, Radcliffe discusses fiber orientation and fiber size only briefly, and particularly at column 3, lines 30-37. Radcliffe states that "the size of strands in different layers and within a layer may also very." Racliffe, column3, lines

36-37. This statement provides no information concerning ***how*** fiber size might vary throughout the cross-section of a single layer, and hence adds nothing to Wold.

Moreover, Radcliffe's figures illustrate fibers of substantially a uniform size within a layer. And, with particular reference to Fig. 2, which illustrates a multi-layered product, the only size graduation indicated is provided by considering the multiple layered product in its entirety, not just a single layer. Even more important, however, is that to the extent fiber size variation in multiple layers is illustrated by Fig. 2 of Radcliffe, such size distribution is graduated, i.e., short (first layer), long (second layer), and short (third layer), exactly the opposite of the reverse graduated structure recited in claim 93, i.e., long (first layer), short (first layer), long (still first layer).

C. Wold and Radcliffe Teach Complete Alignment of Fibers within a Layer

With respect to the product structure recited in claim 93, flakes adjacent the major planar surfaces of the product are substantially aligned in a first direction, typically the machine direction. Smaller flakes that are too small to be significantly influenced by applicants' described flake aligner are substantially randomly oriented in a center portion of the product. Support for this product description can be found in the application, such as at page 41, beginning at about line 5:

> At the same time, flakes in the core material dispensed onto the first stage 252 begin passing thought the first stage 252 and being deposited on the face F according to their size. The smallest flakes tend to be deposited first, i.e., through the zone 260. Slightly larger flakes, which may have been aligned in the zone 260, begin passing through the first stage 252 in the zone 258. Finally, the largest flakes, which may have been aligned in the zones 260 and 258, begin passing through the first stage 252 in the zone 256.

Note that this passage is silent with respect to alignment of the smallest flakes, but does discuss alignment of larger flakes. How such a product is made also is described in considerable detail in the present application, beginning on page 33 and continuing through page 42, line 19.

Wold does not teach a product whereby substantially all of the longest cellulosic flakes are substantially aligned in a first direction and the product graduates in size within the same layer from longer, substantially aligned flakes to shorter, substantially randomly oriented flakes. Wold's product has substantially <u>all</u> fibers within a layer oriented in a particular direction. This conclusion is

supported by Wold's disclosure, which repeatedly discusses the importance of purposefully orienting fibers.

Second, Wold teaches separating cellulosic fibers into 3 classes depending on size. Each of these classified groups of cellulosic flakes is then dispensed from its own dispensing head coupled with an *orientator*. See, for example, Fig. 1 of Wold and its illustration of forming head and orientator #1, forming head and orientator #2, and forming head and orientator #3. By size classification, and assigning an orientator to each size group of flakes, Wold ensures that **all** fibers throughout the cross section of a layer are aligned in substantially the same direction. In contrast, applicants' product has substantially randomly oriented cellulosic flakes at a center portion of the single-layer.

Once again, Radcliffe does not cure the deficiencies of Wold with respect to teaching the flake alignment of the product recited in claim 93. Radcliffe is virtually silent as to fiber orientation, other than to say (1) that the product is **oriented** (with no disclaimer as to, for example, *partially* oriented), and (2) with respect to orientation of fibers in multiple, adjacently positioned layers, that "wood 'flakes' or 'strands' which are oriented generally perpendicular to each other *in adjacent layers*". Emphasis added. Radcliffe, column 3, lines 32-33. This orientation of flakes in adjacent multiple layers of a multi-layered product is supported by Fig. 1 of Racliffe. However, Fig. 2 illustrates Radcliffe's strand alignment throughout the cross section of a *single* layer. Fig. 2 shows that virtually all cellulosic material within the single layer is substantially aligned in the same direction. Thus, Radcliffe teaches the same features as Wold, and the two teachings are substantially dissimilar from the product recited in applicants' claim 93.

Finally, applicants' claimed product provides a distinct advantage with respect to the cited documents. The method for making applicants' claimed product does not require a first size classification of cellulosic flakes as required by Wold. Instead, flakes of all useful sizes are dispensed from a dispensing head to make the product recited in claim 93. And, the product of claim 93 also provides a materials benefit with respect to the product of Wold, as cellulosic flakes of all sizes can be used to make a single-layered product.

D. Remaining Pending Claims

Claims 94 and 95 depend from claim 93, and are allowable for the reasons stated concerning claim 93, and further in view of the patentable combination of features recited in these claims.

CONCLUSION

The pending claims are in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

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Marked-up Version of Amended Claims
Pursuant to 37 C.F.R. §§ 1.121(b)-(c)

93 (Amended Three Times) A single-layered cellulosic and waste thermoplastic composite product[,] comprising a first surface and a second surface, the [composite] product having [cellulosic fines adjacent the first and second surfaces,] longer cellulosic flakes oriented substantially in a first direction and positioned adjacent the [cellulosic fines] first and second surfaces and continuously graduating to shorter cellulosic flakes at a center portion of the product.

94. (Amended) The product according to claim 93 [where] further comprising a cellulosic fines layer adjacent the first and second surfaces [has] having a thickness of from about 1/48 inch to about ¾ inch.

95. (Amended) The product according to claim 93 [where] further comprising a cellulosic fines layer adjacent the first and second surfaces [has] having a thickness of from about 1/36 inch to about 1/4 inch.